

Research Report DFE-RR195

Subject progression from GCSE to AS Level and continuation to A Level

**Education Standards Analysis and
Research Division**

The views expressed in this report are the authors' and do not necessarily reflect those of the Department for Education.

Executive Summary

Aim

- The aim of this topic paper is to provide an analysis of progression rates in English Baccalaureate subjects from GCSE to AS Level, and then to follow the cohort through from AS to full A level achievement.

GCSE-AS level progression

- For each subject, pupils achieving a higher grade at GCSE are more likely to go on to enter the same subject at AS level (i.e. have higher progression rates) than those at lower grades.
- Progression rates from GCSE to AS levels, for pupils achieving A*-C, are highest for biology, chemistry and history.
- The impact of grade on progression is highest in maths, with high progression from A* and A, but low from B and C grades.
- Looking across Key Stage 4 institution types, grammar and independent schools have the highest rates of progression on to AS level from all A*-C grade pupils combined whereas non-selective maintained schools have higher rates at individual GCSE grade (reflecting the higher grade distribution in grammar and independent schools).

AS-A level progression

- The highest proportions of pupils progressing from AS to A level are in history and English (78%), followed by geography (76%), while physics shows the lowest progression rate (67%).
- Across most types of institution, English has the highest rates of AS to A level progression (except for grammar schools, where the progression rate for geography is 1 percentage point higher).
- Comparing across Key Stage 5 institution types, independent schools have the highest rates of progression in all subjects except for biology, where grammar schools have a rate 2 percentage points higher.

GCSE-A level progression

- As with progression to AS level, progression from GCSE to A level depends on the grade at GCSE, with lower progression rates from lower GCSE grades.
- Progression rates from GCSE to A levels, for pupils achieving A*-C, are highest for biology, history and chemistry.
- As with progression to AS level, the impact of GCSE grade on progression to A level is highest in maths, with high progression from A* and A, but low from B and C grades. Geography shows the lowest impact of grade on progression.
- Grammar and independent schools have the highest rates of progression to A level from all A*-C grade pupils combined, with non-selective

maintained schools having higher rates at individual GCSE grade (reflecting the higher grade distribution in grammar and independent schools).

- Achievement at A level decreases as GCSE grade decreases across all subjects, with only a small proportion of pupils achieving better grades at A level than at GCSE.

Glossary

FE	: Further Education
IB	: International Baccalaureate
KS2	: Key Stage 2
KS4	: Key Stage 4
KS5	: Key Stage 5
NPD	: National Pupil Database
SFR	: Statistical First Release

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Introduction

Aim

The aim of this topic paper is to provide an analysis of the proportion of pupils taking GCSE and progressing to AS Level in the same subject (i.e. progression rates), focussing on English Baccalaureate subject areas, and then to follow the same cohort through from AS to full A level achievement.

Data from the National Pupil Database were used to produce descriptive analyses regarding progression rates from GCSE (grades A*-C individually) to AS level for the cohort who completed Key Stage 4 in 2008 for a set of chosen subjects. Subjects assessed are biology, chemistry, physics, maths, English language, history, geography, French, German and Spanish. The publication also shows progression by KS4 institution type (independent schools, grammar schools, academies etc.). The analysis then follows this cohort through to look at the progression rates for AS to A level and for GCSE to A level (again by subject and institution type), and examines progression rates directly from GCSE to A-level by GCSE grade, including a comparison of GCSE grade to A-level grade achieved.

This is the first time that progression rates from GCSE to AS level and from AS level to A level have been published.

This paper is not intended to be a regular publication and aims to only provide a snapshot view of progression based on evidence available at this point in time.

2008 GCSE attainment by subject

This paper focuses on pupils studying English Baccalaureate subject areas, particularly for pupils achieving A*-C grades when looking at progression from GCSE, and follows these pupils to Key Stage 5 in 2009 and 2010. The tables below from the 2008 revised KS4 SFR provide background on the number of pupils that entered each subject and the achievement of these pupils.

Table A shows the number of pupils who attempted each GCSE and also the number who achieved grades A*-C. It can be seen that although English, maths and core/additional science have the highest number of pupils taking the exams, the three separate sciences have the highest proportion of pupils who achieved at least a grade C.

Table A: GCSE attempts and achievements in selected subjects of pupils at the end of Key Stage 4

	Thousands		% achieved grades A*-C
	Attempted GCSE	Achieved grades A*-C	
Any subject	636.7	518.4	81%
Biological Sciences	74.7	68.2	91%
Chemistry	68.3	64.7	95%
Physics	67.3	63.6	95%
Core Science	491.6	291.5	59%
Additional Science	354.5	240.2	68%
History	204.0	138.5	68%
Geography	177.4	121.7	69%
French	176.4	120.7	68%
German	71.1	51.3	72%
Spanish	57.0	40.5	71%
English	616.6	398.5	65%
Mathematics	609.7	361.1	59%

Source: 2007/08 revised Key Stage 4 SFR, Table 10

Table B looks at the grade distribution when looking at the number of entries (as opposed to number of pupils in Table A) in each subject, including attempts and achievements by these pupils in previous academic years. The three separate sciences have the highest proportion of achievements at grades A*, A and B whereas additional science has the highest proportion of achievements at grade C.

Table B: GCSE results of pupils at the end of Key Stage 4, by subject and grade

Subjects	Grades obtained										Total Entries
	A*	A	B	C	D	E	F	G	U	X	
Biological Sciences	20%	30%	26%	14%	5%	2%	1%	1%	1%	0%	77.1
Chemistry	24%	30%	26%	15%	4%	1%	0%	0%	0%	0%	68.9
Physics	23%	29%	26%	15%	4%	1%	0%	0%	0%	0%	67.9
Core Science	3%	10%	19%	27%	18%	12%	7%	3%	1%	1%	516.6
Additional Science	6%	12%	21%	29%	17%	8%	4%	2%	1%	0%	355.6
History	11%	19%	20%	18%	13%	9%	5%	3%	2%	0%	204.5
Geography	11%	16%	18%	23%	15%	8%	4%	2%	2%	0%	177.8
French	10%	14%	19%	25%	17%	9%	4%	1%	0%	0%	178.7
German	9%	15%	20%	28%	16%	7%	3%	1%	0%	0%	71.7
Spanish	15%	17%	17%	22%	15%	7%	4%	2%	0%	0%	57.6
English	4%	12%	21%	26%	19%	10%	5%	2%	1%	0%	642.8
Mathematics	5%	11%	17%	26%	16%	11%	7%	4%	2%	0%	731.9

Source: Adapted from 2007/08 revised Key Stage 4 SFR, Table 13

Chapter 1: GCSE to AS level progression

Key findings

- For each subject, pupils achieving a higher grade at GCSE are more likely to go on to enter the same subject at AS level (i.e. have higher progression rates) than those at lower grades.
- Progression rates from GCSE to AS levels, for pupils achieving A*-C, are highest for biology, chemistry and history.
- The impact of grade on progression is highest in maths, with high progression from A* and A, but low from B and C grades.
- Looking across Key Stage 4 institution types, grammar and independent schools have the highest rates of progression on to AS level from all A*-C grade pupils combined whereas non-selective maintained schools have higher rates at individual GCSE grade (reflecting the higher grade distribution in grammar and independent schools).

This chapter will look at the patterns and trends in different progression rates from GCSE to AS level by GCSE grade and subject. It also includes breakdowns by Key Stage 4 institution type when controlling for GCSE grade.

1.1 AS level take up by subject with GCSE grade breakdown

Table 1.1 provides direct comparisons of progression rates across subjects and grades, with the highest rate for each grade highlighted.

For each subject, progression from GCSE to AS level depends on the grade at GCSE, with lower progression rates for lower GCSE grades. For A* grade pupils, maths has the highest progression rate at 79%, for A grade pupils the highest is for the combination of core and additional science, whereas history has the highest for B and C pupils. Despite having the highest proportion of A* grade pupils progressing to AS level, maths also has the joint lowest progression rates for C grade pupils.

Looking at the A*-C aggregate figures, biology shows the highest overall progression rate. The science and humanities subjects have the highest rates of progression to AS level (with core/additional science pupils progressing to **any** of AS level biology, chemistry or physics), whereas the languages have the lowest progression rates over all grades. For maths, the difference in progression rates between A* and C grade pupils is the greatest of all subjects analysed.

Table 1.1: Progression rates from GCSE to AS level by subject and grade (highest progression rate for each grade highlighted)

progression rate for each grade highlighted						
	% of pupils progressing from GCSE to AS level					% point difference between A* and C progression rates ⁵
	GCSE grade					
Subject	A*	A	B	C	A*-C	
Biology	51%	45%	30%	9%	36%	42
Chemistry	59%	40%	21%	5%	34%	54
Physics	43%	30%	16%	4%	25%	39
Core and additional science ^{1, 2}	65%	53%	30%	7%	24%	58
History	53%	45%	33%	16%	35%	37
Geography	40%	37%	29%	11%	27%	29
French	41%	21%	7%	1%	13%	40
German	40%	21%	8%	1%	12%	38
Spanish	44%	26%	11%	2%	19%	42
English ³	49%	40%	26%	8%	23%	41
Maths ⁴	79%	48%	15%	1%	20%	78

1. Grades are scored in the two subjects, giving A* 10 points, A 9 points, B 8 points and C 7 points.

The average of the two exams is then tabulated as A* = 10points, A= 9-9.5points, B =8-8.5points, C=7-7.5points

2. Looking at progression to any of AS level biology, chemistry or physics

3. 'English' at AS level includes English, English Language and English Literature

4. 'Maths' at AS level includes maths, mechanics, pure, applied, discrete, statistics, further and additional maths

5. Figures may not appear consistent due to rounding

Source: National Pupil Database

Looking across the sciences, a greater proportion of chemistry pupils with an A* at GCSE progress to chemistry AS level (59% compared to 51% for biology and 43% for physics), whereas biology has the highest overall proportion of A*-C pupils taking an AS level in the same subject (36% compared to 34% for chemistry and 25% for physics). Physics sees the lowest percentage (4%) of pupils taking up the AS level from a C grade in GCSE.

In Table 1.1, the figures for pupils taking both core and additional science GCSEs show progression to **any** science AS level, (biology chemistry or physics) and these figures therefore show a high rate of progression from all GCSE grades, and cannot be compared directly to the individual sciences. In addition, the table allocates only pupils with an A* in both subjects to the first column. Pupils with A*A, A*B and AA are included in the second column and so on.

Geography sees a lower level of progression at each grade compared to history. The difference between geography and history is larger for A* grade pupils than for C grade pupils (13 percentage points compared to 5 percentage points respectively).

Comparing the AS level uptake for language students, it can be seen that the progression rates are quite similar for French, German and Spanish (with Spanish being slightly higher across all grades). Table 1.1 also shows that very few pupils with a C grade in these languages continue on to AS level.

1.2 GCSE to AS level progression - Institution type breakdowns

This section looks at progression to AS level by different KS4 institution types, when controlling for GCSE attainment, again with the highest progression rate for each grade highlighted.

Looking at tables 1.2 and 1.3 (11-16 and 11-18 maintained mainstream schools) it can be seen that within each grade category, the subjects with the highest progression rates are the same as nationally (the exception being B grade pupils in 11-16 schools, where biology has the highest proportion continuing on to AS level as opposed to core/additional science pupils).

11-18 maintained mainstream schools have slightly higher progression rates across all grades and subjects than 11-16 schools, except for B grade pupils in chemistry and pupils with B and C grades in Spanish.

Table 1.2: GCSE to AS level progression by subject – 11-16 maintained mainstream

11-16 maintained mainstream	% progressing on AS level					% point difference between A* and C progression rates ⁵
	GCSE grade					
	A*	A	B	C	A*-C	
Subject	A*	A	B	C	A*-C	
Biology	54%	47%	31%	8%	34%	45
Chemistry	63%	45%	25%	5%	32%	58
Physics	48%	31%	16%	4%	23%	44
Core and additional science ^{1, 2}	68%	52%	27%	5%	20%	63
History	51%	41%	27%	12%	28%	38
Geography	39%	33%	23%	8%	20%	31
French	47%	23%	8%	1%	10%	46
German	46%	23%	8%	1%	10%	45
Spanish	49%	32%	14%	2%	17%	47
English ³	54%	43%	26%	7%	20%	48
Maths ⁴	80%	50%	15%	1%	17%	79

Source: National Pupil Database

Table 1.3: GCSE to AS level progression by subject – 11-18 maintained mainstream

11-18 maintained mainstream	% progressing on AS level					% point difference between A* and C progression rates ⁵
	GCSE grade					
	A*	A	B	C	A*-C	
Subject	A*	A	B	C	A*-C	
Biology	55%	48%	32%	10%	37%	45
Chemistry	67%	46%	23%	6%	34%	61
Physics	50%	34%	18%	5%	25%	45
Core and additional science ^{1, 2}	73%	58%	33%	8%	26%	65
History	59%	51%	37%	18%	37%	40
Geography	48%	42%	32%	14%	29%	34
French	51%	27%	9%	1%	13%	50
German	47%	24%	9%	2%	11%	45
Spanish	50%	28%	12%	3%	17%	47
English ³	57%	45%	29%	9%	24%	47
Maths ⁴	84%	52%	16%	1%	20%	83

Source: National Pupil Database

1. Grades are scored in the two subjects, giving A* 10 points, A 9 points, B 8 points and C 7 points.

The average of the two exams is then tabulated as A* = 10points, A= 9-9.5points, B =8-8.5points, C=7-7.5points

2. Looking at progression to any of AS level biology, chemistry or physics

3. 'English' at AS level includes English, English Language and English Literature

4. 'Maths' at AS level includes maths, mechanics, pure, applied, discrete, statistics, further and additional maths

5. Figures may not appear consistent due to rounding

The picture changes slightly when looking at pupils sitting their GCSEs in academies compared to all pupils – the highest progression rate for A grade pupils is in maths, rather than core/additional science pupils, and for A*-C overall history has the highest rate at 36%.

Table 1.4: GCSE to AS level progression by subject – Academies

Academies	% progressing on AS level					% point difference between A* and C progression rates ⁵
	GCSE grade					
Subject	A*	A	B	C	A*-C	
Biology	47%	41%	26%	7%	26%	41
Chemistry	64%	50%	20%	4%	31%	60
Physics	59%	38%	12%	5%	23%	55
Core and additional science ^{1, 2}	60%	53%	35%	9%	22%	51
History	52%	53%	36%	23%	36%	29
Geography	39%	29%	24%	8%	19%	31
French	60%	26%	10%	1%	13%	59
German	60%	32%	10%	3%	16%	57
Spanish	40%	29%	18%	2%	19%	38
English ³	57%	45%	30%	9%	21%	48
Maths ⁴	84%	58%	17%	2%	17%	82

Source: National Pupil Database

For pupils sitting their GCSEs in grammar schools, progression rates are distributed across subjects in a similar way to the national picture in Table 1.1 but with history matching biology for the progression rate of all A*-C pupils combined. It is noticeable that the progression rates by individual grades are lower for grammar school pupils compared to all pupils (and indeed those in non-selective schools in Tables 1.2-1.4). However, progression rates from the A*-C group as a whole are higher, particularly for maths and core/additional science, reflecting the higher grade distribution in grammar schools.

Table 1.5: GCSE to AS level progression by subject – Grammar schools

Grammar	% progressing on AS level					% point difference between A* and C progression rates ⁵
	GCSE grade					
Subject	A*	A	B	C	A*-C	
Biology	51%	43%	27%	4%	39%	47
Chemistry	59%	36%	14%	3%	37%	57
Physics	42%	27%	14%	2%	27%	40
Core and additional science ^{1, 2}	63%	46%	28%	7%	35%	56
History	53%	41%	31%	11%	39%	43
Geography	39%	35%	27%	7%	31%	32
French	41%	17%	4%	0%	17%	40
German	35%	16%	5%	0%	14%	35
Spanish	42%	22%	7%	1%	20%	41
English ³	46%	34%	22%	9%	31%	36
Maths ⁴	76%	39%	8%	1%	38%	76

Source: National Pupil Database

1. Grades are scored in the two subjects, giving A* 10 points, A 9 points, B 8 points and C 7 points.

The average of the two exams is then tabulated as A* = 10points, A= 9-9.5points, B =8-8.5points, C=7-7.5points

2. Looking at progression to any of AS level biology, chemistry or physics

3. 'English' at AS level includes English, English Language and English Literature

4. 'Maths' at AS level includes maths, mechanics, pure, applied, discrete, statistics, further and additional maths

5. Figures may not appear consistent due to rounding

The progression rates for pupils sitting their GCSEs in independent schools are shown in Table 1.6. Maths has the highest percentage progressing on to AS level for A* pupils, but at a lower level than maintained mainstream schools. History has the highest progression rates for A, B and C grade pupils individually as well as for A*-C overall, with biology and geography.

Note that in the data, over half of pupils in independent schools in 2008 that went on to AS level maths did not have GCSE maths, possibly due to them having taken iGCSE maths. These pupils are not included in Table 1.6. The omission of these pupils depresses progression rates, which means that Table 1.6 cannot directly be compared to the tables for other sectors. In addition, some pupils in independent schools did not progress to AS level but progressed to other qualifications, such as the International Baccalaureate (IB). This also affects comparability with other sectors where qualifications such as the IB are less common.

Table 1.6: GCSE to AS level progression by subject – Independent schools

Independent	% progressing on AS level					% point difference between A* and C progression rates ⁵	
	GCSE grade						
Subject	A*	A	B	C	A*-C		
Biology	47%	39%		25%	8%	36%	39
Chemistry	52%	31%		15%	4%	35%	48
Physics	38%	23%		13%	3%	26%	34
Core and additional science ^{1, 2}	48%	38%		22%	7%	25%	41
History	47%	39%		28%	13%	37%	34
Geography	35%	35%		28%	13%	30%	22
French	34%	14%		4%	0%	16%	34
German	33%	15%		6%	1%	17%	32
Spanish	40%	22%		8%	1%	23%	38
English ³	39%	28%		19%	7%	24%	32
Maths ⁴	68%	34%		8%	1%	26%	67

Source: National Pupil Database

1. Grades are scored in the two subjects, giving A* 10 points, A 9 points, B 8 points and C 7 points.

The average of the two exams is then tabulated as A* = 10points, A= 9-9.5points, B =8-8.5points, C=7-7.5points

2. Looking at progression to any of AS level biology, chemistry or physics

3. 'English' at AS level includes English, English Language and English Literature

4. 'Maths' at AS level includes maths, mechanics, pure, applied, discrete, statistics, further and additional maths

5. Figures may not appear consistent due to rounding

Table 1.7 summarises the percentage point differences between progression rates for pupils at A* and C grades at GCSE. Across all institution types, maths shows the greatest impact of grade on progression to AS level. Geography shows the least impact in all institution types, except for academies where the impact of grade is slightly lower in history.

Independent schools stand out as having the lowest impact of prior attainment for all subjects (except for history in academies).

Table 1.7: Difference between progression rates for A* and C grade pupils by subject

Subject	% point difference between A* and C progression rates				
	11-16 maintained mainstream	11-18 maintained mainstream	Academies	Grammar	Independent
Biology	45	45	41	47	39
Chemistry	58	61	60	57	48
Physics	44	45	55	40	34
Core and additional science ^{1, 2}	63	65	51	56	41
History	38	40	29	43	34
Geography	31	34	31	32	22
French	46	50	59	40	34
German	45	45	57	35	32
Spanish	47	47	38	41	38
English ³	48	47	48	36	32
Maths ⁴	79	83	82	76	67

Source: National Pupil Database

1. Grades are scored in the two subjects, giving A* 10 points, A 9 points, B 8 points and C 7 points.

The average of the two exams is then tabulated as A* = 10points, A= 9-9.5points, B =8-8.5points, C=7-7.5points

2. Looking at progression to any of AS level biology, chemistry or physics

3. 'English' at AS level includes English, English Language and English Literature

4. 'Maths' at AS level includes maths, mechanics, pure, applied, discrete, statistics, further and additional maths

5. Figures may not appear consistent due to rounding

Chapter 2: AS to A level progression

Key findings

- The highest proportions of pupils progressing from AS to A level are in history and English (78%), followed by geography (76%), while physics shows the lowest progression rate (67%).
- Across most types of institution, English has the highest rates of AS to A level progression (except for grammar schools, where the progression rate for geography is 1 percentage point higher).
- Comparing across Key Stage 5 institution types, independent schools have the highest rates of progression in all subjects except for biology, where grammar schools have a rate 2 percentage points higher.

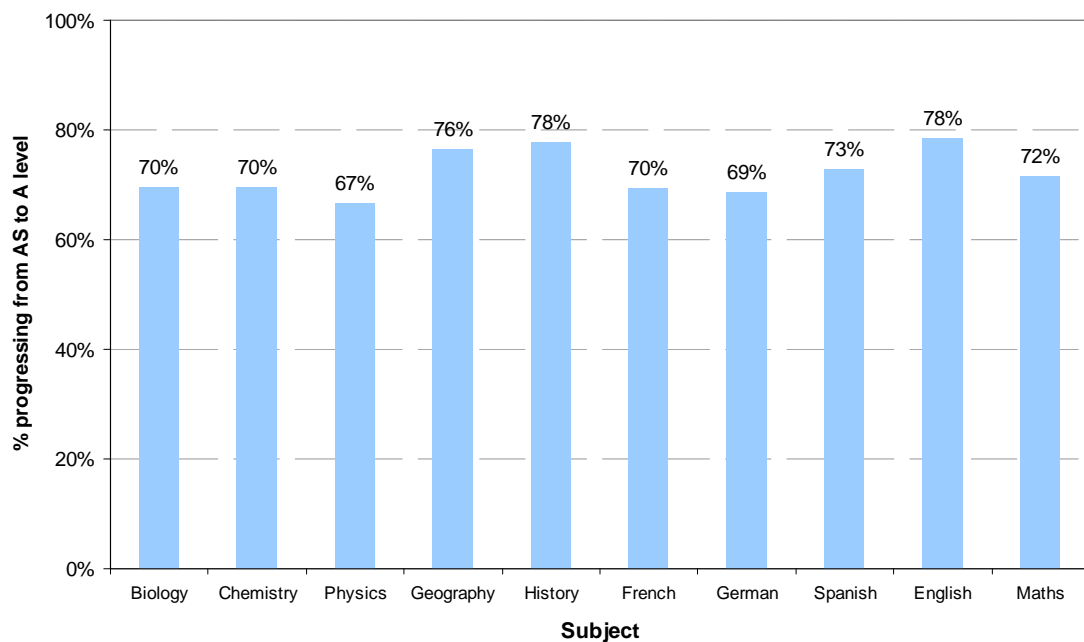
This chapter continues to follow pupils in the 2008 GCSE cohort, looking at their progression rates when moving from AS to A level (including institution type breakdowns).

2.1 AS to A level progression rate analysis

Chart 2.1 shows the progression from AS to A level. For the sciences, biology and chemistry have the same progression rate (70%) whilst physics has a lower rate (67%). The humanity subjects similar progression rates, with history (78%) slightly higher than geography (76%), whereas in the languages progression rates range from 69% for German to 73% for Spanish. 78% of English AS level pupils progress to the full A level, compared to 72% for maths pupils.

Looking across the board, it can be seen that physics has the lowest progression rate (67%) whereas history and English have the highest at 78%. Generally, the humanities subjects and English appear to stand out as having markedly higher progression rates compared to the other subjects.

Chart 2.1: AS to A level progression for all subjects^{1,2}



Source: National Pupil Database

1. 'English' at AS/A level includes English, English Literature and English Language

2. 'Maths' includes maths, mechanics, pure, applied, discrete, statistics, further and additional maths

2.2 AS to A level progression - Institution type breakdowns

Table 2.1 provides direct comparisons across subjects and Key Stage 5 institution types¹. Further Education colleges have the lowest progression from AS to full A level for all subjects, whereas independent schools have the highest rates.

Across most types of institution, English has the highest rates of AS to A level progression, except for in grammar schools (where the progression rate for geography is 1 percentage point higher). Both English and history have the highest rates overall.

Chemistry shows the greatest difference in progression rates between different institution types, with a 39 percentage point difference between the rate in independent institutions (88%) and the rate in FE colleges (49%).

¹ Institution type as in 2009 where available, otherwise 2010 where available

Table 2.1: Progression rates from AS to A level by subject and institution type²

	% progressing on A level						
	Other Maintained						
Subject	Grammar	Mainstream	Independent	6th Form College	FE college		All pupils
Biology	80%	65%	88%	67%	55%		70%
Chemistry	79%	64%	88%	68%	49%		70%
Physics	74%	62%	85%	63%	51%		67%
Geography	85%	74%	92%	68%	62%		76%
History	82%	77%	92%	71%	65%		78%
French	75%	65%	85%	61%	55%		70%
German	75%	65%	86%	62%	51%		69%
Spanish	74%	69%	88%	64%	58%		73%
English ¹	84%	78%	92%	76%	68%		78%
Maths ²	81%	68%	90%	67%	55%		72%

1. 'English' at AS/A level includes English, English Literature and English Language

2. 'Maths' includes maths, mechanics, pure, applied, discrete, statistics, further and additional maths

Source: National Pupil Database

² Institution type as in 2009 where available, otherwise 2010 where available

Chapter 3: GCSE to A Level progression

Key findings

- As with progression to AS level, progression from GCSE to A level depends on the grade at GCSE, with lower progression rates from lower GCSE grades.
- Progression rates from GCSE to A levels, for pupils achieving A*-C, are highest for biology, history and chemistry.
- As with progression to AS level, the impact of GCSE grade on progression to A level is highest in maths, with high progression from A* and A, but low from B and C grades. Geography shows the lowest impact of grade on progression
- Grammar and independent schools have the highest rates of progression to A level from all A*-C grade pupils combined, with non-selective maintained schools having higher rates at individual GCSE grade (reflecting the higher grade distribution in grammar and independent schools).
- Achievement at A level decreases as GCSE grade decreases across all subjects, with only a small proportion of pupils achieving better grades at A level than at GCSE.

This chapter will look at the patterns and trends in different progression rates from GCSE to A level by GCSE grade and subject. It also includes breakdowns by Key Stage 4 institution type when controlling for GCSE grade.

3.1 A level take up by subject with GCSE grade breakdown

Table 3.1 provides direct comparisons across subjects and grades, with the highest progression rate for each grade highlighted.

As with progression from AS level, progression from GCSE to A level depends on the grade at GCSE, with lower progression rates for lower GCSE grades. The subjects with the highest progression rates are the same for GCSE to A level progression as with GCSE to AS level progression. The impact of grade on progression is highest in maths, with by far the highest progression from A*, but low progression from B and C grades.

Table 3.1: Progression rates from GCSE to A level by subject and grade (highest progression rate for each grade highlighted)

	% of pupils progressing from GCSE to A level					% point difference between A* and C progression rates ⁵
	GCSE grade					
Subject	A*	A	B	C	A*-C	
Biology	47%	37%	19%	3%	29%	44
Chemistry	54%	30%	11%	1%	26%	52
Physics	38%	22%	8%	1%	19%	37
Core and additional science ^{1, 2}	62%	46%	21%	3%	18%	59
History	46%	37%	24%	10%	28%	36
Geography	35%	31%	21%	6%	21%	29
French	35%	14%	3%	0%	9%	34
German	33%	14%	4%	0%	8%	33
Spanish	37%	18%	6%	1%	14%	36
English ³	44%	34%	20%	5%	18%	39
Maths ⁴	73%	34%	6%	0%	14%	72

1. Grades are scored in the two subjects, giving A* 10 points, A 9 points, B 8 points and C 7 points.

The average of the two exams is then tabulated as A* = 10points, A= 9-9.5points, B =8-8.5points, C=7-7.5points

2. Looking at progression to any of A level biology, chemistry or physics

3. 'English' at A level includes English, English Language and English Literature

4. 'Maths' at A level includes maths, mechanics, pure, applied, discrete, statistics, further and additional maths

5. Figures may not appear consistent due to rounding

Source: National Pupil Database

Again for the sciences, a greater proportion of chemistry pupils with an A* at GCSE progress to chemistry A level (54% compared to 47% for biology and 38% for physics).

As with progression to AS level, the figures for pupils taking both core and additional science GCSEs show progression to **any** science A level, (biology chemistry or physics) and these figures therefore show a high rate of progression from all GCSE grades, and cannot be compared directly to the individual sciences.

The impact of grade on progression is lowest for geography, with the difference in progression rates between A* and C grade pupils at 29 percentage points.

Comparing the A level uptake for language students, it can be seen that the progression rates are quite similar for French and German with Spanish rates being slightly higher across all grades. Table 3.1 also shows that virtually no pupils with a C grade in languages continue on to A level.

3.2 GCSE to A level progression - Institution type breakdowns

This section looks at progression to A level in different institution types, when controlling for GCSE attainment, again with the highest progression rate for each grade highlighted.

In tables 3.2 and 3.3 (11-16 and 11-18 maintained mainstream schools) it can be seen that the highest rates in each grade category are for the same subjects as nationally (the exception being overall A*-C progression rates in 11-18 schools, where history has the highest proportion continuing on to A level as opposed to biology).

11-18 maintained mainstream schools have slightly higher progression rates across all grades and subjects than 11-16 schools, except for A, B and C

grades in chemistry. The largest differences between the institution types can be seen in history progression rates.

Table 3.2: GCSE to A level progression by subject – 11-16 maintained mainstream

11-16 maintained mainstream	% progressing on A level					% point difference between A* and C progression rates ⁵
	GCSE grade					
Subject	A*	A	B	C	A*-C	
Biology	49%	39%	18%	3%	25%	46
Chemistry	57%	34%	12%	2%	23%	55
Physics	41%	21%	8%	1%	15%	39
Core and additional science ^{1, 2}	65%	45%	19%	3%	15%	62
History	41%	31%	19%	7%	20%	34
Geography	32%	25%	16%	4%	14%	28
French	38%	14%	3%	0%	6%	38
German	38%	14%	3%	0%	6%	38
Spanish	38%	18%	6%	1%	10%	38
English ³	47%	35%	19%	4%	15%	43
Maths ⁴	73%	35%	6%	0%	11%	73

Source: National Pupil Database

Table 3.3: GCSE to A level progression by subject – 11-16 maintained mainstream

11-18 maintained mainstream	% progressing on A level					% point difference between A* and C progression rates ⁵
	GCSE grade					
Subject	A*	A	B	C	A*-C	
Biology	50%	39%	19%	3%	27%	46
Chemistry	60%	33%	11%	1%	24%	58
Physics	43%	25%	8%	1%	18%	41
Core and additional science ^{1, 2}	69%	50%	22%	4%	19%	66
History	50%	42%	28%	12%	29%	38
Geography	41%	35%	24%	8%	22%	33
French	41%	17%	4%	0%	8%	41
German	38%	16%	4%	1%	7%	38
Spanish	40%	19%	6%	1%	12%	40
English ³	50%	38%	22%	6%	19%	44
Maths ⁴	76%	37%	6%	0%	13%	76

Source: National Pupil Database

1. Grades are scored in the two subjects, giving A* 10 points, A 9 points, B 8 points and C 7 points.

The average of the two exams is then tabulated as A* = 10points, A= 9-9.5points, B =8-8.5points, C=7-7.5points

2. Looking at progression to any of A level biology, chemistry or physics

3. 'English' at A level includes English, English Language and English Literature

4. 'Maths' at A level includes maths, mechanics, pure, applied, discrete, statistics, further and additional maths

5. Figures may not appear consistent due to rounding

The picture changes slightly when looking at pupils sitting their GCSEs in academies compared to all pupils – the highest progression rate for B grade pupils moves from history to core/additional science, and for A*-C overall history has the highest rate at 25%.

Table 3.4: GCSE to A level progression by subject – Academies

Academies	% progressing on A level					% point difference between A* and C progression rates ⁵
	GCSE grade					
Subject	A*	A	B	C	A*-C	
Biology	42%	32%	16%	3%	19%	39
Chemistry	58%	35%	11%	2%	22%	56
Physics	52%	27%	3%	1%	16%	51
Core and additional science ^{1, 2}	57%	47%	28%	4%	17%	53
History	45%	42%	24%	12%	25%	33
Geography	36%	24%	18%	4%	14%	33
French	51%	20%	6%	0%	10%	50
German	46%	21%	6%	2%	11%	43
Spanish	24%	21%	12%	1%	13%	23
English ³	45%	37%	23%	6%	16%	39
Maths ⁴	77%	43%	7%	0%	11%	77

Source: National Pupil Database

For pupils sitting their GCSEs in grammar schools, the subject with the highest progression within each grade is the same as nationally. It is noticeable that the progression rates by individual grades decrease slightly when comparing grammar school pupils to all pupils (particularly for A grade pupils). However, progression rates from the A*-C group as a whole are higher, particularly for maths and core/additional science, reflecting the higher grade distribution in grammar schools.

Table 3.5: GCSE to A level progression by subject – Grammar schools

Table 3.5: GCSE to A level progression by subject – Grammar schools						
Grammar	% progressing on A level					% point difference between A* and C progression rates ⁵
	GCSE grade					
Subject	A*	A	B	C	A*-C	
Biology	48%	37%	18%	1%	34%	46
Chemistry	54%	28%	8%	1%	31%	52
Physics	37%	20%	7%	0%	21%	36
Core and additional science ^{1, 2}	59%	39%	19%	3%	29%	56
History	46%	35%	24%	7%	32%	38
Geography	34%	30%	21%	5%	26%	29
French	34%	12%	2%	0%	13%	34
German	29%	11%	3%	0%	10%	29
Spanish	35%	15%	3%	0%	15%	35
English ³	41%	29%	17%	6%	26%	35
Maths ⁴	71%	28%	3%	0%	32%	71

Source: National Pupil Database

1. Grades are scored in the two subjects, giving A* 10 points, A 9 points, B 8 points and C 7 points.

The average of the two exams is then tabulated as A* = 10points, A= 9-9.5points, B =8-8.5points, C=7-7.5points

2. Looking at progression to any of A level biology, chemistry or physics

3. 'English' at A level includes English, English Language and English Literature

4. 'Maths' at A level includes maths, mechanics, pure, applied, discrete, statistics, further and additional maths

5. Figures may not appear consistent due to rounding

Table 3.6 shows the progression rates for pupils sitting their GCSEs in independent schools. Pupils with A* grades in maths have the highest percentage progressing on to A level (but at a lower level than maintained mainstream schools). History has the highest progression rates for A and C grade pupils individually as well as for A*-C overall, whereas geography has the highest rates for B grade pupils.

As with progression to AS level, note that pupils without a GCSE maths grade are excluded from Table 3.6. The omission of these pupils depresses progression rates, which means that Table 3.6 cannot directly be compared to the tables for other sectors.

Table 3.6: GCSE to A level progression by subject – Independent schools

Independent	% progressing on A level					% point difference between A* and C progression rates ⁵
	GCSE grade					
Subject	A*	A	B	C	A*-C	
Biology	44%	34%	18%	3%	32%	41
Chemistry	49%	25%	9%	1%	30%	48
Physics	34%	19%	8%	1%	21%	33
Core and additional science ^{1, 2}	45%	33%	16%	3%	21%	42
History	43%	35%	23%	11%	33%	33
Geography	32%	32%	24%	10%	27%	22
French	30%	10%	2%	0%	13%	30
German	29%	12%	3%	1%	14%	29
Spanish	36%	17%	5%	1%	20%	35
English ³	36%	25%	16%	5%	21%	31
Maths ⁴	64%	26%	4%	0%	21%	63

Source: National Pupil Database

1. Grades are scored in the two subjects, giving A* 10 points, A 9 points, B 8 points and C 7 points.

The average of the two exams is then tabulated as A* = 10points, A= 9-9.5points, B =8-8.5points, C=7-7.5points

2. Looking at progression to any of A level biology, chemistry or physics

3. 'English' at A level includes English, English Language and English Literature

4. 'Maths' at A level includes maths, mechanics, pure, applied, discrete, statistics, further and additional maths

5. Figures may not appear consistent due to rounding

Table 3.7 summarises the percentage point differences between progression rates for pupils at A* and C grades at GCSE. Across all institution types, maths shows the greatest impact of grade on progression to A level. Geography shows the least impact in most institution types, except for academies (Spanish) and grammar schools (German).

Across the majority of the subjects independent schools show the lowest impact of GCSE grade on progression, whereas the greatest impact is in 11-18 maintained mainstream schools or academies, depending on subject.

Table 3.7: Difference between progression rates for A* and C grade pupils by subject

Subject	% point difference between A* and C progression rates				
	11-16 maintained mainstream	11-18 maintained mainstream	Academies	Grammar	Independent
Biology	46	46	39	46	41
Chemistry	55	58	56	52	48
Physics	39	41	51	36	33
Core and additional science ^{1, 2}	62	66	53	56	42
History	34	38	33	38	33
Geography	28	33	33	29	22
French	38	41	50	34	30
German	38	38	43	29	29
Spanish	38	40	23	35	35
English ³	43	44	39	35	31
Maths ⁴	73	76	77	71	63

Source: National Pupil Database

1. Grades are scored in the two subjects, giving A* 10 points, A 9 points, B 8 points and C 7 points.

The average of the two exams is then tabulated as A* = 10points, A= 9-9.5points, B =8-8.5points, C=7-7.5points

2. Looking at progression to any of A level biology, chemistry or physics

3. 'English' at A level includes English, English Language and English Literature

4. 'Maths' at A level includes maths, mechanics, pure, applied, discrete, statistics, further and additional maths

5. Figures may not appear consistent due to rounding

3.3 Impact of GCSE grade on A level attainment

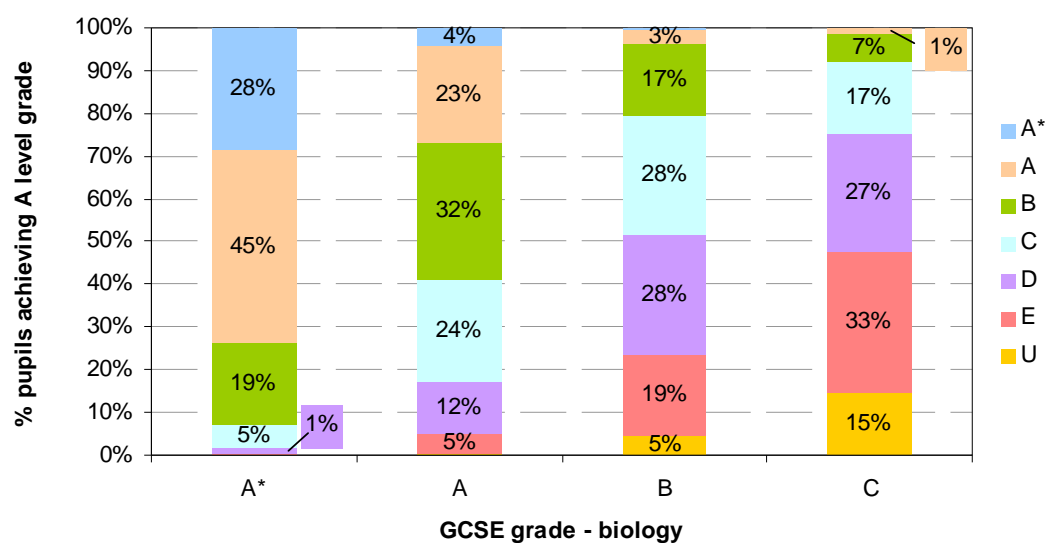
Charts 3.1 to 3.10 take each subject separately and look at the grade distribution at the relevant A level qualification for those pupils who take the A level, for each GCSE grade attained. For English and maths, where more than one A level has been achieved, the highest grade has been taken (as with the three science subjects for core/additional science pupils).

As one would expect, achievement at A level decreases as GCSE grade decreases across all subjects. For GCSE A* pupils, more than 95% achieve at least a C in the respective A level, where C grade pupils generally had a larger proportion of pupils achieving better grades at A level compared with A or B grade pupils. The most common A level grade achieved from an A* at GCSE is A, from an A it is a B grade, from a B it is a C or D grade and from a C it is a D or E grade.

Looking across the sciences at GCSE A* and A grade pupils, biology has the highest proportion of A*/A grade pupils at A level (73% from A* and 27% from A), closely followed by core/additional science pupils (70% and 23% respectively) compared to chemistry (67% and 19% respectively) and physics (66% and 17% respectively). The proportion of C grade pupils achieving a B grade or higher at A level is lowest for physics (3% compared to 8%, 7% and 6% in biology, core/additional science and chemistry respectively).

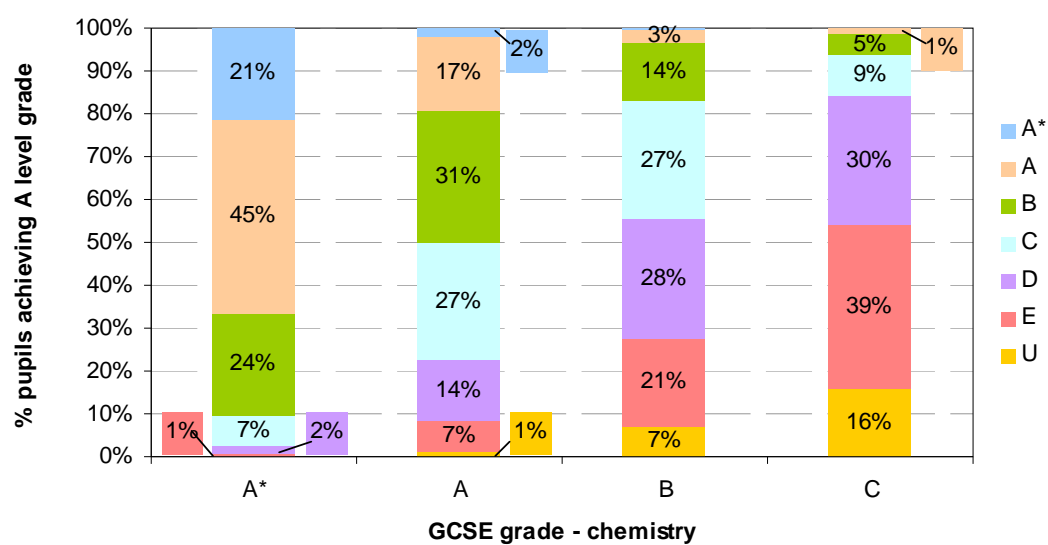
It can be seen that over 50% of pupils with a grade A in GCSE physics that go on to A level physics achieve a grade C or lower and, as such, physics could be seen as being more difficult at A level than the other sciences.

Chart 3.1: Impact of GCSE grade on A level attainment – biology



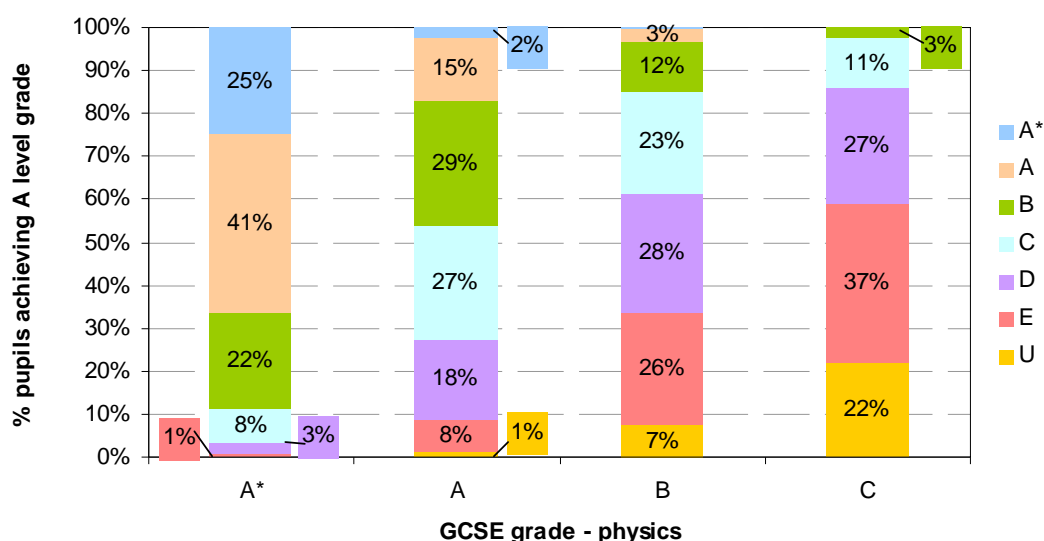
Source: National Pupil Database

Chart 3.2: Impact of GCSE grade on A level attainment – chemistry



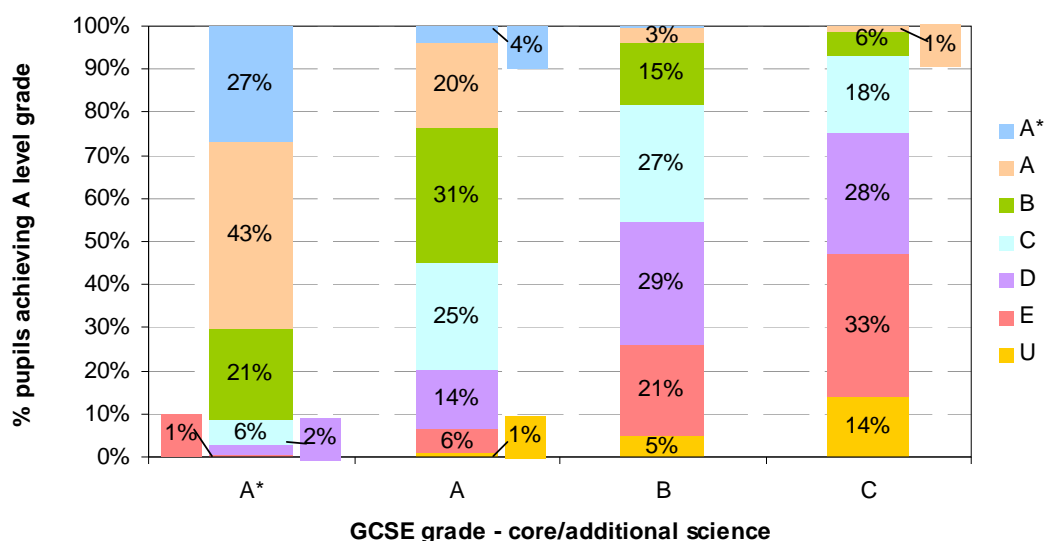
Source: National Pupil Database

Chart 3.3: Impact of GCSE grade on A level attainment – physics



Source: National Pupil Database

Chart 3.4: Impact of GCSE grade on A level attainment – core/additional science^{3,4}



Source: National Pupil Database

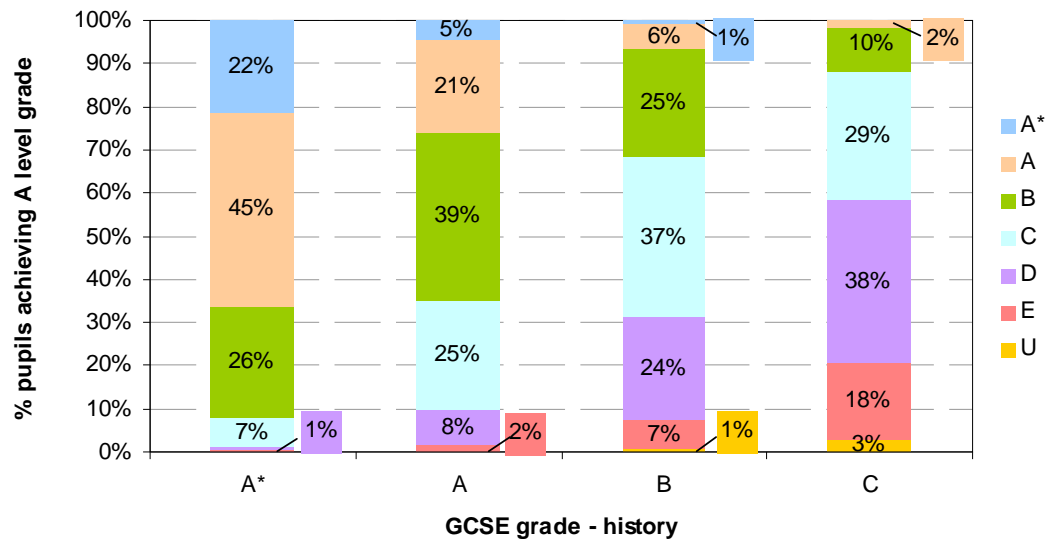
Although history has a higher proportion than geography of A* grade pupils progressing to A* at A level (22% compared to 20%), geography shows a greater proportion of A* pupils progressing to A*/A grades overall due to a larger percentage achieving an A grade at A level (51% compared to 45%).

³ Grades are scored in the two subjects, giving A* = 10 points, A = 9 points, B = 8 points and C = 7 points. The average of the two exams is then given as A* = 10 points, A = 9-9.5 points, B = 8-8.5 points, C = 7-7.5 points

⁴ Looking at progression to any of A level biology, chemistry or physics and taking the highest grade achieved.

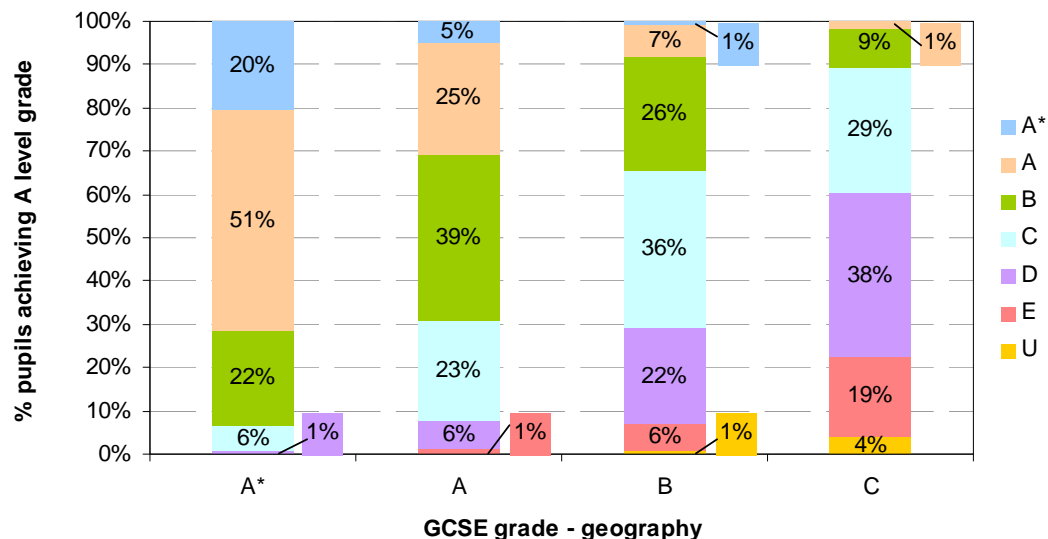
Looking at pupils with a grade C at GCSE, the humanities show a relatively large proportion of pupils achieving a better grade at A level – 12% in history and 10% in geography.

Chart 3.5: Impact of GCSE grade on A level attainment - history



Source: National Pupil Database

Chart 3.6: Impact of GCSE grade on A level attainment - geography

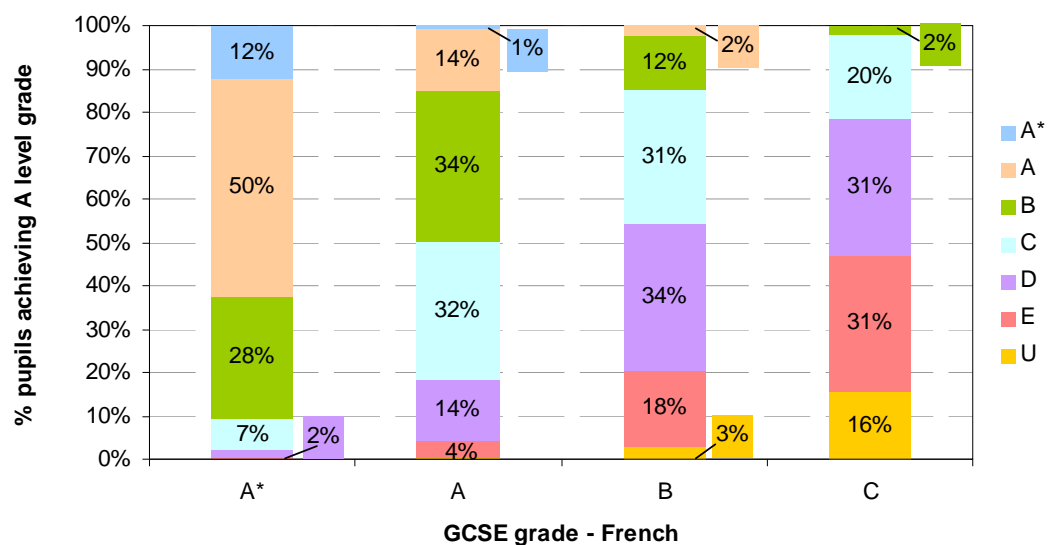


Source: National Pupil Database

The languages each show very similar patterns when looking at the impact of GCSE grade on A level grade, with the largest difference being for A* pupils dropping to an A grade at A level - 50% in both French and German but dropping to 45% in Spanish (although Spanish shows a slightly higher proportion of A* pupils remaining at A* level). The proportion of A* grade pupils achieving A*/A grade at A level is lower than when looking at previous subjects areas (the highest being 62% of French pupils).

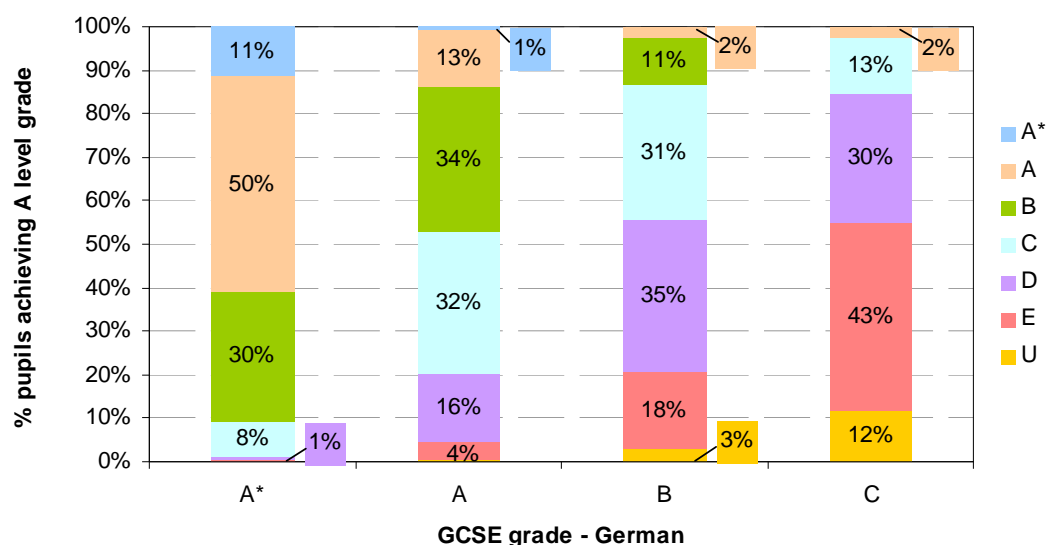
It can also be seen that over 50% of pupils with a grade A in GCSE German that go on to A level German achieve a grade C or lower (likewise with a grade B at GCSE more than 50% achieve a grade D or lower at A level).

Chart 3.7: Impact of GCSE grade on A level attainment - French



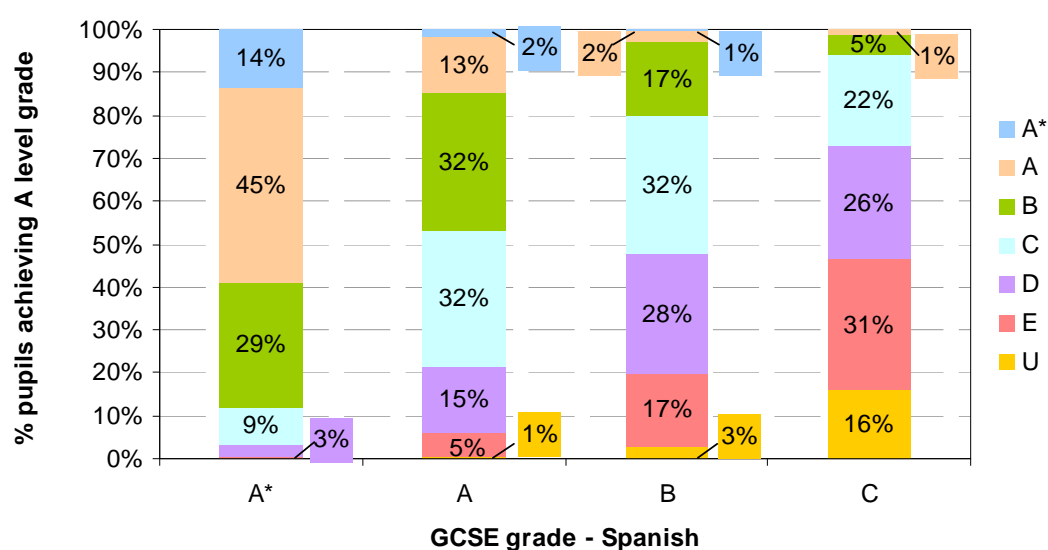
Source: National Pupil Database

Chart 3.8: Impact of GCSE grade on A level attainment - German



Source: National Pupil Database

Chart 3.9: Impact of GCSE grade on A level attainment – Spanish



Source: National Pupil Database

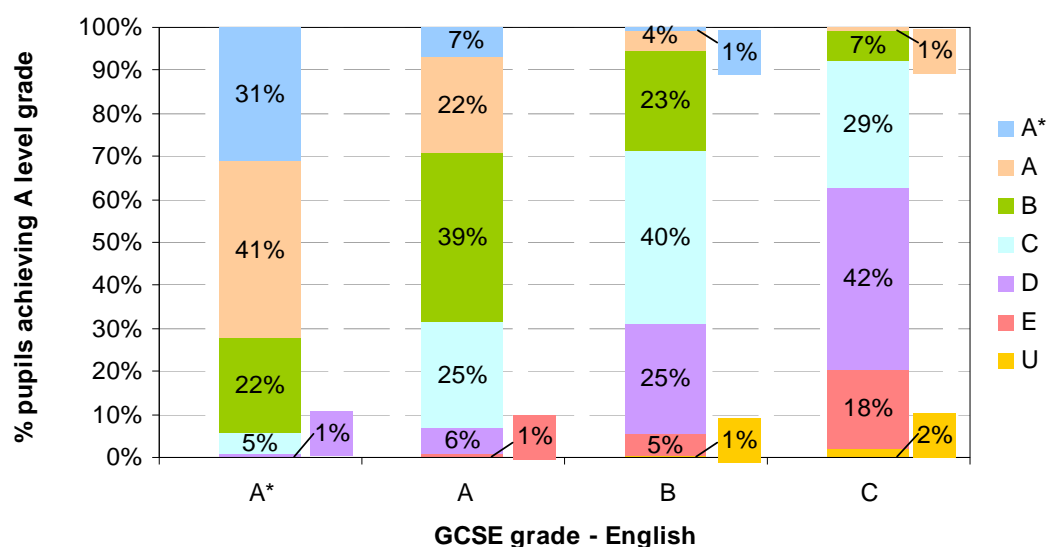
Both English and maths show a high proportion of A* grade pupils achieving A*/A at A level (72%). It can be seen that, for maths, around 15% of C grade pupils achieve a B grade or higher at A level (8% for English pupils with a C grade at GCSE).

Maths shows one of the largest differences between GCSE A* and A grade pupils achieving an A* at A level (26percentage points), which links back to

maths showing the highest impact of grade on both AS and A level progression previously shown.

It can also be seen that over 50% of pupils with a grade B in GCSE maths that go on to A level maths achieve a grade D or lower, whereas over 50% of those with a grade B in GCSE English go on to achieve at least a grade C or above.

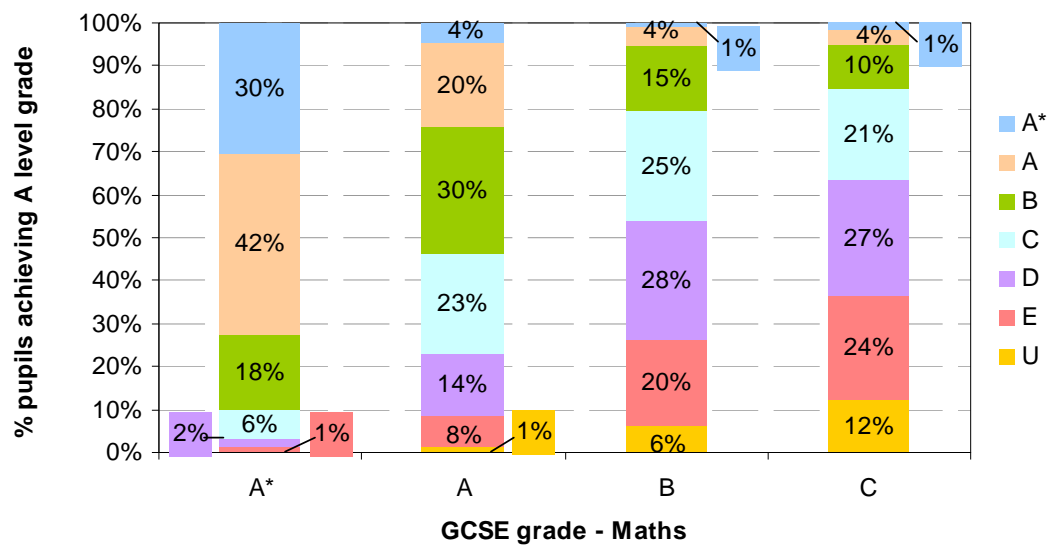
Chart 3.10: Impact of GCSE grade on A level attainment – English⁵



Source: National Pupil Database

⁵ 'English' at A level includes English, English Language and English Literature and takes the highest grade achieved.

Chart 3.11: Impact of GCSE grade on A level attainment - maths⁶



Source: National Pupil Database

⁶ 'Maths' at A level includes maths, mechanics, pure, applied, discrete, statistics, further and additional maths and takes the highest grade achieved.

Further Work

This topic note aims to give an introduction to cohort progression from GCSE to A level. Other developments could include breaking progression down by pupil characteristics, variation in progression between individual institutions, progression right through from Key Stage 2, and progression from AS to A level by AS level grade. Data including pupils who took AS level in 2010 and progressed to A level in 2011 could also be included (please see 'Data and Methodology' for further details on this point).

In January 2011 a topic note was published looking at maths and science education which included models showing the impact of pupil characteristics on progression from GCSE to A level. This note is available at:

<https://www.education.gov.uk/publications/RSG/AllRsgPublications/Page1/DFE-RR079>

Data and Methodology

The data used cover pupils entering GCSEs in 2008 (2008 KS4 National Pupil Database, NPD), and has 2009 and 2010 Key Stage 5 NPD information matched on to include pupils taking AS and/or A levels in these years. AS/A levels achieved in 2008 (i.e. those taken early in year 11) were also matched to the 2008 Key Stage 4 data and added a small number of matches, which are included in the analyses but not separately out specifically.

Pupils in the 2008 GCSE cohort are counted as progressing on to AS level if they have been recorded as having taken either the relevant AS level in either 2008 or 2009, or having taken the relevant A level in 2008, 2009 or 2010. Pupils are counted as progressing on to A level if they have been recorded as having taken either the relevant A level in either 2008, 2009 or 2010.

The approach above assumes that the pupils who took an AS level in 2009 but did not continue to A level in the subject in 2010 cashed in their AS in 2009 (See Technical Note below for an explanation of cashing in). Pupils who have been recorded as having taken the relevant AS level in 2010 but with no attainment at A-level in 2010 have not been included in these analyses.

There may be cases where pupils who sat their AS levels in 2009 but did not progress to the full A level did not cash in the AS level until 2010. Also pupils taking AS levels in 2010 could have taken a gap year, or could be studying additional AS levels alongside their full A levels in 2010. It is difficult to identify such pupils, hence they have been omitted from these analyses. The impact of including 2010 AS takers has not been assessed in this note, however it is likely that the rates of progression from GCSE to AS level would increase slightly and those from AS to A level would decrease slightly.

When looking at A level grade, the grade in the latest year was taken. That is, for those with a grade in 2010 then this was taken. For pupils without a grade in 2010 then 2009 grades were taken and then 2008 grades for pupils still without a grade. Generally a pupil would only have one entry across the three years but a small proportion crop up in both 2009 and 2010 datasets. When this occurred, these pupils normally either matched their previous grade or bettered it.

Technical Note

Most of the AS levels analysed in this note were taken in 2009, the year after the GCSE in 2008. AS levels are captured within the data in the year when they are 'cashed in' - this is when the school/college applies to the awarding body for a result to be awarded. If an AS level was cashed in at that time, typically at the end of Year 12, then it was recorded in the relevant SFR (02/2010) Table 3. Some of these pupils went on to take A level and some did not. However, many pupils who sat AS levels in Year 12 in 2009 did not cash in their qualification, but went on to take the A2 in 2010. Their AS level was not recorded in the 2009 Key Stage 5 SFR because it was not cashed in, but neither was it recorded in the 2010 Key Stage 5 SFR, because the A2 was cashed in at the same time and only the higher qualification was recorded.

This results in a lower number of completed AS levels being recorded than the actual number of AS levels actually being sat. As such, KS4-AS level progression has previously been underestimated.

As there have been significant numbers of entries for which no AS level result was ever published (because they were cashed in the same year as the corresponding A level, and discounted from the published figures) AS-A level progression estimated from published figures in the SFR are overestimated.

Full details of AS and A level publication can be found in the 2011 Key Stage 5 SFR (revised):

<http://www.education.gov.uk/rsgateway/DB/SFR/s001055/sfr01-2012.pdf>

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